

Quality of life and communication in orthognathic treatment

Article (Accepted Version)

Catt, Susan L, Ahmad, Sofia, Collyer, Jeremy, Hardwick, Lauren, Shah, Nahush and Winchester, Lindsay (2018) Quality of life and communication in orthognathic treatment. *Journal of Orthodontics*, 45 (2). pp. 65-70. ISSN 1465-3125

This version is available from Sussex Research Online: <http://sro.sussex.ac.uk/id/eprint/74701/>

This document is made available in accordance with publisher policies and may differ from the published version or from the version of record. If you wish to cite this item you are advised to consult the publisher's version. Please see the URL above for details on accessing the published version.

Copyright and reuse:

Sussex Research Online is a digital repository of the research output of the University.

Copyright and all moral rights to the version of the paper presented here belong to the individual author(s) and/or other copyright owners. To the extent reasonable and practicable, the material made available in SRO has been checked for eligibility before being made available.

Copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational, or not-for-profit purposes without prior permission or charge, provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

Quality of life and communication in orthognathic treatment

Susan L Catt ¹, Sofia Ahmad², Jeremy Collyer², Lauren Hardwick², Nahush Shah², Lindsay Winchester²

¹Sussex Health Outcomes Research & Education in Cancer (SHORE-C)

Brighton & Sussex Medical School

University of Sussex

Falmer

Brighton

BN1 9RX

²Queen Victoria Hospital (QVH)

Holtye Road

East Grinstead

RH19 3DZ

Corresponding Author

Dr Susan Catt

SHORE-C, BSMS

University of Sussex,

Falmer, BN1 9RX

Tel: +44 1273 873024

Fax: +44 1273 873022

Email: S.L.Catt@sussex.ac.uk – email can be published

Abstract

Objective: The primary aim was to determine what, if any, relationships exist between communication and quality of life in patients receiving orthognathic treatment since this has not been explored. A secondary aim was to compare the Quality of Life (QoL) of a pre-treatment sample with those at 2 years post-surgery. **Design:** A cross-sectional questionnaire method was used. **Setting:** Outpatient clinics providing orthognathic treatment at four UK hospital sites. **Participants:** Two separate samples of pre-treatment (n=73) and 2 year post-surgery (n=78) patients participated in the study. **Methods:** At clinic appointments all eligible patients were invited to complete the Orthognathic Quality of Life Questionnaire (OQLQ), a previously validated condition-specific quality of life measure. At the same time participants at the 2 year post-surgery stage also completed a second short questionnaire, the Communication Assessment Tool-Team (CAT-T), where they rated the quality of communication they had received during treatment. **Results:** One hundred and fifty-one complete responses were received. The average age was 24.5 years (S.D. 9.77) and the majority (67%) were female in both groups. Statistically significant associations were found between QoL and quality of communication in the treated sample. Findings also showed a comparatively poorer QoL for the pre-treatment participants. This reduced QoL was more pronounced in females than males for all aspects except dentofacial appearance.

Conclusions: There was an improvement in QoL for patients at 2 years post-surgery compared to pre-treatment. There is an association between QoL and quality of communication as reported by participants at 2 years post-surgery. These novel findings are similar to outcomes in other patient settings such as oncology, but further investigation is required to establish the direction of cause and effect.

Keywords: communication; orthognathic; quality of life

Introduction

Orthognathic treatment success is recorded and reported in terms of clinical results, but with moves towards more holistic care there has been interest in the collection and publication of patient reported outcome measures (PROMs). Satisfaction is one of the simplest patient reported outcomes to measure and there has been a nationally agreed and validated orthognathic patient satisfaction questionnaire (Travess et al., 2004) promoted through the British Orthodontic Society (BOS) website (Morris, 2015). Cunningham et al., (1995) found that following orthognathic treatment most patients are highly satisfied and would re-elect to have the surgery. However, where the aims are not only to improve function but also appearance, other areas of patients' lives will be influenced too. Treating clinicians have anecdotally noted improvements to their patients' psychological and social wellbeing and an expanding body of research supports this. Two systematic literature reviews which comprehensively covered published studies from 1966 to 2012 came to the same broad conclusion that there was proof that orthognathic surgery improved the quality of life (QoL) of patients with dentofacial deformities (Hunt et al., 2001; Soh & Narayanan, 2013). Hunt et al. (2001) found that the psychosocial benefits likely to accrue to patients were not clearly defined and that there was an urgent need for well-controlled longitudinal studies to establish these benefits and whether they were sustained in the long term. It also highlighted a lack of uniformity in the techniques used to evaluate QoL outcomes. The more recent review scrutinised studies published since 2001 and found higher levels of evidence, better study design, and increased use of validated instruments which generated quantifiable data, such as Cunningham et al.'s (2000; 2002) Orthognathic Quality of Life Questionnaire (OQLQ) a condition-specific QoL tool validated for orthognathic treatment. The review found only one

study (Motegi et al., 2003) had carried out longitudinal follow up and recommended more work was needed to understand the longer-term QoL outcomes for patients. Since the last review new literature has appeared including evidence that the OQLQ has been validated in other languages (e.g. Brazilian version, de Araújo et al., 2013) and studies are more widely reported from around the world with interest being shown in the influences of ethnicity and culture, such as data gathered in Iran (Eslamipour et al., 2017). The relationships/influences between quality of life and psychological wellbeing (depression and anxiety) have been the focus of some studies (e.g. Brunault et al., 2016). There is a growing investigation of the comparative outcomes of surgery-first versus the traditional orthognathic approach (Pelo et al., 2017), but the reporting of longitudinal QOL outcome data greater than 12 months post-surgery is still to happen.

Regarding communication in orthognathic treatment, Ikeda (2011), published a literature review which concluded that patient comprehension and retention of information about orthodontic treatment and orthognathic surgery was poor, particularly regarding the risks associated with treatment. A small number of studies indicated that communication and information provision have significant influences on patients' satisfaction of orthognathic treatment. High treatment satisfaction has been associated with patients' realistic expectations of outcome (Edgerton & Knorr, 1971), realistic expectations of post-operative discomfort and recovery (Kiyak et al., 1982) and effective pre-operative preparation of the patient (Flanary & Alexander, 1983). When patients have reported dissatisfaction it has most commonly been due to the lack of explanation of side-effects following surgery itself (Cunningham et al., 1996). Literature from the oncology setting has revealed that unmet information needs can be linked to negative consequences such as poorer psychological adjustment and wellbeing, including anxiety and depression, and reduced ability for self-care (Annunziata et al., 1998;

Ong et al., 2000; Molenaar et al., 2001; McPherson et al., 2001). Enhancing information provision has been shown to result in improvements in information satisfaction, recall, decision-making and QoL. Moreover, information satisfaction has been demonstrated to be an important predictor of overall QoL and its components in terms of physical, emotional, social and functional wellbeing (Davies et al., 2008). In other populations, such as patients undergoing myomectomy or hysterectomy (Hempowicz et al., 2013), brain tumour resection (Diaz et al., 2009), and pelvic reconstructive surgery (Kenton et al., 2007), there is evidence to demonstrate that patient preparedness, including informed consent, for surgical procedures is an important predictor of outcome relating to patient satisfaction, symptom improvement and QoL. Relationships between communication and quality of life in orthognathic treatment have not been investigated previously and the current study aims to explore this in a UK population.

Material and Methods

A cross-sectional questionnaire study was carried out at four UK hospital sites (Queen Victoria Hospital, East Grinstead; East Surrey Hospital, Redhill; Medway Maritime Hospital, Gillingham; Darent Valley Hospital, Dartford) between October 2014 and November 2015.

Two separate samples of pre-treatment and 2 year post-surgery patients attending orthognathic clinics were invited to join the study. Eligible patients were identified by the clinical team responsible for their care via electronic clinic lists and were approached consecutively during the study period. They received an invitation letter together with the patient information sheet and were given the opportunity to ask questions about the study before making a final decision whether to participate or not. Those willing to take part were

provided with a consent form and the study questionnaire(s) by members of the clinical teams at each of the study sites.

Each participant was asked to complete the questionnaire(s) on a single occasion. Pre-treatment participants only completed the QoL questionnaire, whereas the 2 year post-surgery group were also asked to complete an additional questionnaire about the quality of communication they had received during treatment. Participation took place in a designated quieter area of the waiting room or spare clinic/side-room if available. A pen, clipboard, the consent form and the questionnaire(s) were supplied together with a sealable envelope for the confidential return of the completed items.

The Orthognathic Quality of Life Questionnaire (OQLQ) was employed to measure QoL as there is good evidence for its validity, reliability and responsiveness (Cunningham et al., 2000; 2002). It is a self-reported questionnaire with 22 items divided into four domains: facial aesthetics, oral function, awareness of deformity, and social aspects of the deformity. Items are rated on a 4-point Likert scale ranging from 1 “bothers you a little” to 4 “bothers you a lot”. Higher scores indicate more concerns and poorer QoL, whereas lower scores indicate fewer concerns and better QoL.

To measure the quality of communication that patients experienced during treatment the Communication Assessment Tool-Team (CAT-T) was used (Mercer et al., 2008). This is a reliable and validated instrument which was developed for assessing patient perceptions of healthcare staff performance in the areas of interpersonal and communication skills and has been applied in both hospital and community settings. It contains 15 items for respondents to

rate medical staff on different dimensions of communication and interpersonal skills, e.g. 'they talked in terms I could understand'. Scoring is done on a 5-point Likert scale (1=poor, 2=fair, 3=good, 4=very good, 5=excellent). The authors of this instrument recommend results are summarised by calculating the proportion of items rated as 'excellent' rather than using mean scores.

Descriptive summary statistics were generated for the two questionnaires and SPSS Statistics (Version 22.0) was used to analyse these data. Differences between the two patient groups in QoL as measured by the OQLQ were examined using analysis of variance (ANOVA).

Correlational analysis (non-parametric Spearman's rho) was used to explore any relationships between QoL and patient rated quality of communication in the treated patient sample only.

Results

One hundred and fifty-six patients attending orthognathic clinics completed questionnaires and evaluable data were available from 151 for analysis. Unfortunately the study sites did not keep refusal records, but anecdotally said they were low. The average age of the whole sample was 24.5yrs (S.D. 9.77) and the pre-treatment patients (n=73) were significantly younger than the 2 year post-surgery group (n=78), 21.2yrs (S.D. 8.11) versus 27.6yrs (S.D. 10.21), $F(1,149) = 18.10$, $p < .001$. Most were female (101/151, 67%) and this was regardless of treatment stage (pre-treatment 45/73, 62%; 2 year post-surgery 56/78, 72%).

Two-way ANOVAS (treatment stage by gender) were carried out for each of the outcomes on the OQLQ measure; the factor of gender being entered since it has previously been reported as

influencing QoL (Bortoluzzi et al., 2015). Repeat of these analyses were performed with age added as a co-variate as a weak effect has also previously been evidenced (Bortoluzzi et al., 2015), but this was not found to change the findings. The ANOVA for the total score of the OQLQ showed significant treatment stage by gender interactive effects and this is graphically displayed in Figure 1. Since similar patterns to the outcome on the total OQLQ score were apparent for the sub-domains of social, facial aesthetic and oral function for brevity they are not presented. Follow up one-way ANOVAS at each level of the two factors (treatment stage and gender) were separately carried out to confirm the final picture. For guidance effect size is indicted by η^2 in the Figures and magnitudes of these values can be equated to general rules of thumb (i.e. small = .01 to <.06, moderate = .06 to <.14, large = >.14). In the pre-treatment group of patients, females reported significantly more concerns in total (and specifically in the domains of social wellbeing, facial aesthetics and oral functioning) than the pre-treatment males. This gender disparity was not apparent in the 2 year post-surgery group and they had clearly reported significantly fewer concerns and therefore better QoL than the pre-treatment patients for all of the OQLQ summary scores.

Figure 1 here.

Regarding awareness of deformity the picture was simpler with patients in the pre-treatment group having reported more concerns than those who were at the 2 year post-surgery stage with gender not found to be a significant influence on this aspect of QoL either as a main or interactive effect (see Figure 2).

Figure 2 here.

Table 1 displays a summary of the ratings 2 year post-surgery patients gave to the quality of communication that they received during their treatment (published results from other studies are provided for comparison).

Table 1 here.

Results of the Spearman's rho correlation analyses exploring the relationships between quality of communication and QoL in the treated patients are presented in Table 2. The OQLQ total score and summary scores for three of the domains (facial aesthetics, awareness of deformity, social aspects) had statistically significant associations with the quality of communication ratings that patients provided. For these domains patients with better QoL scores reported receiving better quality of communication, and those with poorer QoL rated their experience of communication less favourably.

Table 2 here.

Discussion

This study clearly demonstrates that patients considered eligible for orthognathic treatment have an overall reduced QoL compared to patients that have received orthognathic treatment. They have specific concerns regarding their oral function and social aspects of their life, and they have increased concerns about dentofacial appearance and awareness of their condition.

These results are similar to other published studies (Hunt et al., 2001; Soh & Narayanan, 2013). Of note is the fact that this reduced QoL was more pronounced in females than males in relation to all aspects except dentofacial appearance; other recently published studies have found similar gender disparities (Bortoluzzi et al., 2015; Palomares et al., 2016; Stagles et al., 2016). Comparison of the pre-treatment patients with the 2 year post-surgery group in the current study revealed a strong effect of treatment. The treated patients reported significantly better overall QoL and better scores in all of the sub-domains, again this is in agreement with previous findings (Hunt et al., 2001; Soh & Narayanan, 2013). In the 2 year post-surgery group there were no statistically significant differences in QoL between males and females.

Regarding quality of communication, the 2 year post-surgery group rated their experiences as excellent, and compared to the limited published studies in the literature they had received better quality of communication (McCarthy et al., 2013; Ferranti et al., 2010). The lowest ratings for quality of communication were in the following dimensions: front desk staff communicating respectfully with patients, treating clinicians showing interest in patients' own ideas about health, clinicians encouraging patients to ask questions, and involving patients in decision making as much as they wanted.

Any relationship between QoL and quality of communication ratings was explored with the 2 year post-surgery group. Despite the fact that in the majority of instances the rating given by patients for quality of communication was the top score of 5 = 'excellent' correlational analyses found significant, but moderate associations between QoL and quality of communication. Patients with better QoL scores gave higher ratings to the quality of communication they had received and conversely those with poorer QoL had rated their

experience of communication as worse. This type of relationship is evident in other patient settings (Annuziata et al., 1998, Ong et al., 2000, Molenaar et al., 2001, McPherson et al., 2001, Davies et al., 2008, Kenton et al., 2007; Diaz et al., 2009; Hempowicz et al., 2013). Though a small number of studies of orthognathic treatment have that indicated communication and information provision have significant influences on patients' satisfaction (Edgerton & Knorr, 1971; Flanary & Alexander, 1983; Cunningham et al., 1996), this is the first time that the association of communication with QoL has been shown. While these findings are potentially of interest further investigations are required to establish the direction, if any, of cause and effect. At present it is not possible to state whether poor communication has contributed to reducing aspects of some of the patients' QoL in the orthognathic setting, or if having a reduced QoL led to some orthognathic patients experiencing worse communication, and thus gave lower quality ratings when asked about it.

Limitations of the study

We acknowledge the main limitation of this study is the cross-sectional design which was necessary given the budget restraints and time available for the work; a prospective longitudinal study would be ideal. There is potential for the study sample to be biased since it excludes patients who did not attend their clinic appointments; it is possible this group could have a different quality of life and different experiences of communication. Refusals to participate in the current study were not accurately recorded which is a weakness and means that comment cannot be made as to the representativeness of the study sample in relation to all patients attending the orthognathic clinics at the time of the study. There is potential bias with having asked patients to retrospectively give a rating to the quality of communication that they have experienced particularly as it spans a long treatment period for recall. However, the 2 year post-surgery time point was chosen as published evidence shows

improvements in QoL resulting from treatment are still emergent before this. The results from the CAT-T communication measure are exploratory, particularly because it is a generic measure of communication quality and has not previously been validated for the orthognathic population.

Conclusions

- an association was found between QoL and quality of communication as reported by the 2 years post-surgery participants
- the female pre-treatment participants reported more concerns on the OQLQ in total (and for facial aesthetics, oral function, social wellbeing), indicting poorer QoL, than the males in this group
- fewer concerns were reported on the OQLQ (indicating a better QoL) by both females and males in the 2 years post-surgery group compared to the pre-treatment participants

Acknowledgements

We would like to thank all the respondents who found time to complete the questionnaires, Mr Daniel Burford & Miss Natasha Wright who invited patients in their busy clinics to participate, and Sarah Dawe for R&D Department support.

Disclaimer Statement

Funding The Queen Victoria Hospital NHS Foundation Trust Charitable Fund financed this study.

Conflicts of interest The authors report no conflicts of interest.

Ethics approval Ethical approval for the study was granted by NRES Committee London-Chelsea (REC Ref: 14/LO/1402). Permission was granted to use the various questionnaires in the current study for research purposes. Informed consent was obtained from all individual participants included in the study.

References

Annunziata MA, Foladore S, Magri MD, Crivellari D, Feltrin A, Bidoli E, Veronesi A. 1998.

Does the information level of cancer patients correlate with quality of life? A prospective study. *Tumori* 84(6): 619-623.

Bortoluzzi MC, de Camargo Smolarek P, Claudino M, Campagnoli EB, Manfro R. 2015.

Impact of dentofacial deformity on quality of life: age and gender differences evaluated through OQLQ, OHIP and SF36. *Journal of Oral & Maxillofacial Research* 6(3):e3.

Brunault P, Battini J, Potard C, Jonas C, Zagala-Bouquillion B, Chabut A, Mercier JM, Bedhet N, Réveillère C, Goga D, Courtois R. 2016. Orthognathic surgery improves quality of life and depression, but not anxiety, and patients with higher preoperative depression scores improve less. *Int. J. Oral. Maxillofac. Surg.* 45(1): 26-34.

Cunningham SJ, Crean SJ, Hunt NP & Harris M. 1996. Preparation, perceptions, and problems: a long-term follow-up study of orthognathic surgery. *Int. J. Adult Orthodon. Orthognath. Surg.* 11(1): 41-7.

Cunningham SJ, Garratt AM, Hunt NP. 2000. Development of a condition-specific quality of life measure for patients with dentofacial deformity: I. Reliability of the instrument. *Community Dent. Oral Epidemiol.* 28: 195-201.

Cunningham SJ, Garratt AM, Hunt NP. 2002. Development of a condition-specific quality of life measure for patients with dentofacial deformity: II. Validity and responsiveness testing. *Community Dent. Oral Epidemiol.* 30: 81-90.

Cunningham SJ, Hunt NP, Feinman C. 1995. Psychological aspects of orthognathic surgery: a review of the literature. *Int. J. Adult Orthodon. Orthognath. Surg.* 10(3): 159-72.

Davies NJ, Kinman G, Thomas RJ, Bailey T. 2008. Information satisfaction in breast and prostate cancer patients: implications for quality of life. *Psycho-Oncology* 17: 1048-1052.

de Araújo AM, Miguel JA, Gava EC, de Oliveira BH. 2013. Translation and cross-cultural adaptation of an instrument designed for the assessment of quality of life in orthognathic patients. *Dental Press J Orthod.* 18(5): 99-106.

Diaz JL, Barreto P, Gallego JM, Barbero J, Bayes R, Barcia JA. 2009. Proper information during the surgical decision-making process lowers the anxiety of patients with high-grade gliomas. *Acta Neurochir* 151: 357-362.

Edgerton Jr MT, Knorr NJ. 1971. Motivational patterns of patients seeking cosmetic (aesthetic) surgery. *Plast. Reconstr. Surg.* 48: 551-557.

Eslamipour F, Najimi A, Tadayonfard A, Azamian Z. 2017. Impact of orthognathic surgery on quality of life in patients with dentofacial deformities. *Int. J. Dent.* Epub ahead of print 2017 Sept. 27.

Ferranti DE, Makoul G, Forth VE, Rauworth J, Lee J, Williams MV. 2010. Assessing patient perceptions of hospitalist communication skills using the Communication Assessment Tool (CAT). *J. Hosp. Med.* 5(9): 522-7.

Flanary CM, Alexander JM. 1983. Patient responses to the orthognathic surgical experience: factors leading to dissatisfaction J. Oral Maxillofac. Surg. 41: 770-774.

Hempowicz C, Matthes A, Radosa M, Camara O, Winzer H, Reichelt C, Runnebaum I, Strauß B. 2013. The influence of medical informed consent discussion on postoperative satisfaction and quality of life of patients with uterine fibroids after myomectomy or hysterectomy. Psychother. Psychosom. Med. Psychol. 63(9-10): 381-6.

Hunt OT, Johnston CD, Hepper PG, Burden DJ. 2001. The psychological impact of orthognathic surgery: A systematic review. Am. J. Orthod. Dentofacial Orthop. 120(5): 490-496.

Ikeda R. 2011. Comprehension and retention of orthodontic and orthognathic surgery treatment information: a review of literature. J. Am. Coll. Dent. 78(4): 29-34.

Kenton K, Pham T, Mueller E, Brubaker L. 2007. Patient preparedness: an important predictor of surgical outcome. American Journal of Obstetrics & Gynecology 197: 654.e1-654.e6.

Kiyak HA, Hohl T, West RA, McNeill RW. 1982. The psychological impact of orthognathic surgery, a 9 month follow up. Am. J. Orthod. 8142: 404-412.

McCarthy DM, Ellison EP, Venkatesh AK, Engel KG, Cameron KA, Makoul G, Adams JG. 2013. Emergency department team communication with the patient: the patient's perspective. *The Journal of Emergency Medicine* 45(2): 262-270.

McPherson CJ, Higginson IJ, Hearn J. 2001. Effective methods of giving information in cancer: a systematic literature review of randomized controlled trials. *J. public Health Med.* 23: 227-234.

Mercer LM, Tanabe P, Pang PS, Gisondi MA, Courtney DM, Engel KG, Donlan SM, Adams JG, Makoul G. 2008. Patient perspectives on communication with the medical team: Pilot study using the communication assessment tool-team (CAT-T). *Patient Education and Counseling* 73: 220-223.

Molenaar S, Sprangers MA, Rutgers EJ, Luiten EJ, Mulder J, Bossuyt PM, van Everdingen JJ, Oosterveld P, de Haes HC. 2001. Decision support for patients with early-stage breast cancer: effects of an interactive breast cancer CDROM on treatment decision, satisfaction, and quality of life. *J. Clin. Oncol.* 19(6): 1676-1687.

Morris DO. 2015. Orthognathic audit: are we getting it right? *Faculty Dental Journal* 6(3): 120-125.

Motegi E, Hatch JP, Rugh JD, Yamaguchi H. (2003) Health-related quality of life and psychological function 5 years after orthognathic surgery. *Am. J. Orthod. Dentofacial Orthop.* 124(2): 138-43.

Ong LML, Visser MRM, Lammes FB, van der Velden J, Kuenen BC, de Haes JCJM. 2000.

Effect of providing cancer patients with the audiotaped initial consultation on satisfaction, recall, and quality of life: a randomized, double-blind study. *J. Clin. Oncol.* 18(16): 3052-3060.

Palomares NB, Celeste RK, Miguel JAM. 2016. Impact of orthosurgical treatment phases on oral health-related quality of life. *Am J Orthod Dentofacial Orthop* 149: 171-81.

Pelo S, Gasparini G, Garagiola U, Cordaro M, Di Nardo F, Staderini E, Patini R, de Angelis P, D'Amato G, Saponaro G, Moro A. 2017. Surgery-first orthognathic approach vs traditional orthognathic approach: Oral health-related quality of life assessed with 2 questionnaires. *Am. J. Orthod. Dentofacial. Orthop.* 152(2): 250-254.

Soh CL, Narayanan V. 2013. Quality of life assessment in patients with dentofacial deformity undergoing orthognathic surgery – A systematic review. *Int. J. Oral Maxillofac. Surg.* 42: 974-980.

Stagles C, Popat H, Rogers S. 2016. Factors influencing patient-reported quality of life in pre-treatment orthognathic surgery patients. *Angle Orthodontist* 86(2): 331-336.

Travess HC, Newton JT, Sandy JR, Williams AC. 2004. The development of a patient-centred measure of the process and outcome of combined orthodontic and orthognathic treatment. *J Orthod.* 31: 220-234.

Figure 1: Group means for OQLQ total by treatment stage & gender

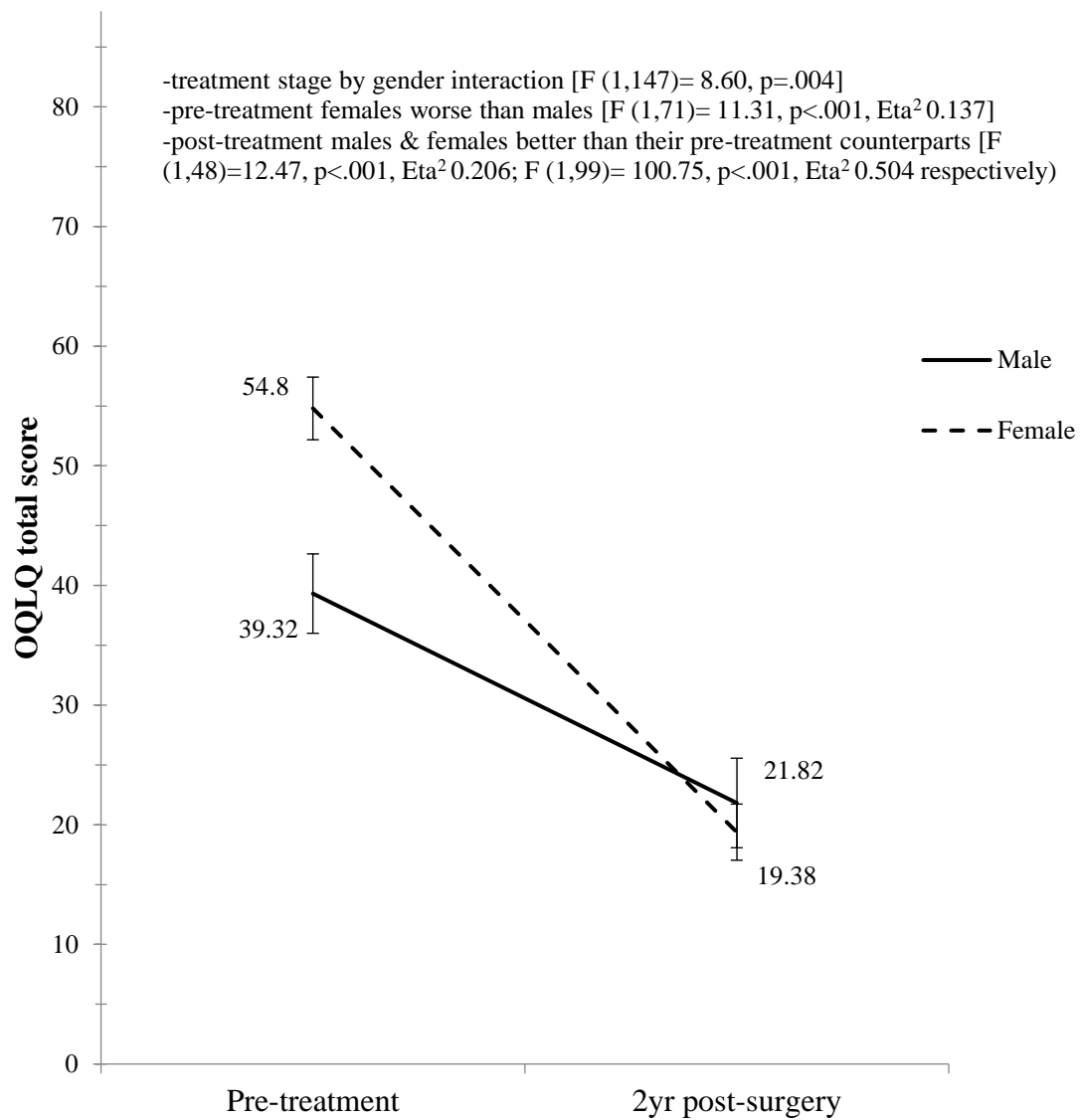


Figure 2: Group means for awareness of deformity by treatment stage & gender

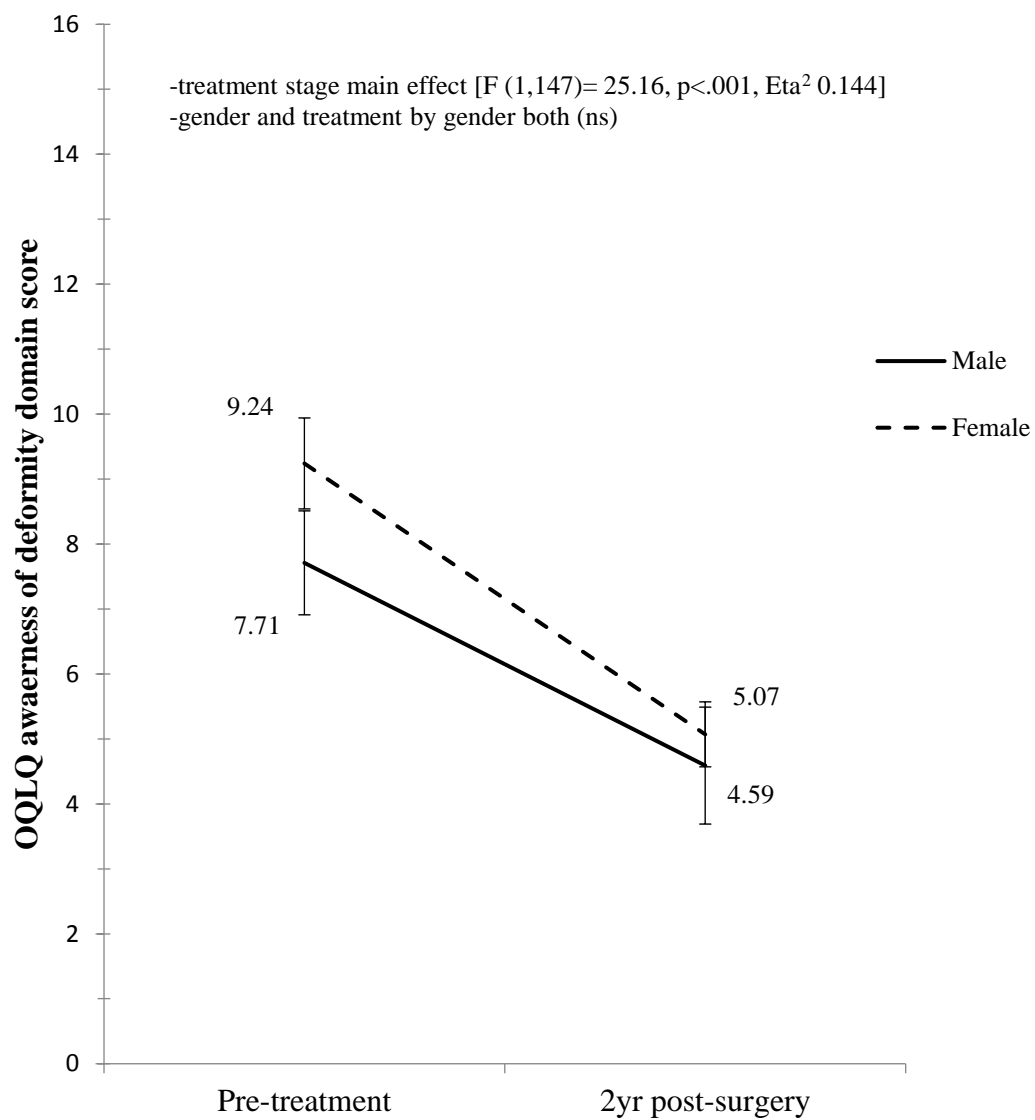


Table 1: CAT-T: Percentage ‘Excellent’ results compared to other published data			
CAT-T item	Current study (n=78)	Emergency Department study* (n=226)	Inpatient study** (n=700)
The medical team:			
1. Greeted me in a way that made me feel comfortable	77	54	55
2. Treated me with respect	82	74	66
3. Showed interest in my ideas about health	67	59	58
4. Understood my health concerns	72	68	57
5. Paid attention to me (looked at me, listened carefully)	78	71	64
6. Let me talk without interruption	77	76	66
7. Gave me as much information as I wanted	73	61	56
8. Talked in terms I could understand	82	75	64
9. Checked to be sure I understood everything	74	66	57
10. Encouraged me to ask questions	68	50	53
11. Involved me in decisions as much as I wanted	68	55	52
12. Discussed next steps, including any follow-up plans	73	68	58
13. Showed me care and concern	76	73	64
14. Spent the right amount of time with me	74	69	57
Front desk staff:			
15. Treated me with respect	64	not reported	not reported
*McCarthy et al., 2013; **Ferranti et al., 2010			

Table 2: Associations between QoL and quality of communication						
Spearman's rho		Quality of life (OQLQ)				
		Total	Social aspects	Facial aesthetics	Oral function	Awareness of deformity
CAT-T total (n=77)	Correlation coefficient	-.342**	-.314**	-.316**	-.211	-.334**
**correlation is significant at the 0.01 level (2-tailed)						